02/08/24 | BIG PHARMA | BIG CHEMICAL | NEWS

Late-Breaking Study Admitted as New Evidence in Landmark Fluoride Trial

The night before the final day of plaintiffs' testimony in a trial that could end drinking water fluoridation in the U.S., Canadian researchers published a new systematic review linking fluoride exposure, at very low levels, to lower IQ in children.

By **Brenda Baletti, Ph.D.**

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***Editor's note:** The Defender is providing daily updates on the landmark trial pitting Fluoride Action Network against the U.S. Environmental Protection Agency. The trial started Feb. 5. To read previous coverage, click here. The trial is scheduled to take place over nine days at the federal courthouse in San Francisco, with a Zoom feed available for up to 1,000 viewers to watch live.*

The night before the final day of plaintiffs' testimony in a trial that could end drinking water fluoridation in the U.S., Canadian researchers published a new systematic review linking fluoride exposure, at very low levels, to lower IQ in children.

Canada's public health agency, Health Canada, commissioned a team of scientists to study the effects of fluoride on human health, but the agency did not publish the review.

The peer-reviewed journal Critical Reviews in Toxicology independently published the study online.

The researchers calculated the toxicological "point of departure" for the effects of fluoride on IQ — also known as the "hazard level," the lowest point at which a toxic effect is observed — and found it to be 0.179 milligrams per liter (mg/L) in water.

Levels of fluoride found in drinking water in the U.S. and Canada typically are in the higher range of 0.7 mg/L.

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The National Toxicology Program (NTP) report links fluoride exposure and lower IQ in children in the last hazard level at 1.5 mg/L, and one of the key studies at the center of the trial set the level even lower than 0.2 mg/L.

The authors of the review also said that the data set that is now large had significant uncertainty and would benefit from further data collection.

Food & Water Watch, Fluoride Action Network, Moms Against Fluoridation and other advocacy groups and individuals are suing the EPA in a bid to force the agency to prohibit water fluoridation in the U.S. due to fluoride's toxic effects on children's developing brains.

The lawsuit is being brought under the Toxic Substances Control Act (TSCA), which regulates the legal levels of human exposure to toxic substances like lead.

All of the other toxic chemicals regulated under TSCA have acceptable human exposure levels set at least 10 times and up to 70 times below the hazard level to account for uncertainty in identified hazard or exposure levels, particularly for the most vulnerable groups.

Even at a hazard level of 1.5 mg/L, exposure levels for fluoride carry significant risk under TSCA's guidelines, but this level was identified by Canadian researchers would set a risk level even further below current exposure levels.

The findings are important to the trial because the identified hazard level was quite low and because the authors calculated their hazard level in terms of water fluoridation levels, which they extrapolated from the urinary fluoride levels used in most studies. Whether and how that can be done has been a significant point of debate at trial.

The findings also are significant because David Savitz, Ph.D., professor of epidemiology at Brown University and the EPA's witness, was part of the expert panel that advised Health Canada on how to interpret this study and other data.

The expert panel concluded there wasn't enough evidence to lower the amount of fluoride in drinking water based on its neurocognitive effects.

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The EPA called Savitz as a witness because he was also part of the National Academies of Sciences, Engineering, and Medicine (NASEM) expert panel that reviewed the NTP report linking fluoride exposure to lower IQs in children. The report is a central piece of evidence in the trial.

NASEM and the NTP authors did not agree on all changes to the report suggested in NASEM's review, and the final changes were eventually published by the NTP's Board of Scientific Counselors, although the report has still not been released.

Savitz will also testify about Health Canada's interpretation of these findings.

Health Canada's decision to commission the study and revisit and affirm its existing water fluoridation standards happened while the NTP's report findings were being debated, and allegedly suppressed, by U.S. public health agencies.

Before Wednesday's testimony began, plaintiffs moved to put the new study into evidence. EPA attorneys countered, arguing that Health Canada's expert panel summary report from June 2023 — in which the agency concluded current drinking water levels for fluoride were likely safe — should be entered into evidence instead.

The EPA argued that Savitz had not read this new peer-reviewed document. He had only read and evaluated the unpublished and confidential report submitted to Health Canada, and would not be able to speak to the new publication.

Federal Judge Edward Chen, who will rule on the case, accepted both documents into evidence. He also ordered the EPA to obtain a copy of the unpublished report submitted to Health Canada, if possible.

Study found 'big loss, dental fluorosis were most significant issues

The newly published study systematically reviewed evidence from human, animal and in vitro data on the epidemiological and toxicological effects of fluoride in drinking water using the "Bradford Hill" criteria.

Bradford Hill criteria are a set of epidemiological principles used to identify causal relationships between a toxin and its associated effects.

The review included the studies assessed by the NTP's systematic review of the literature, along with recent studies.

The review also examined fluoride's epidemiological effects beyond the narrow question of IQ loss among children and found strong evidence linking fluoride exposure to dental fluorosis.

It also linked fluoride exposure to other problems, including thyroid dysfunction, kidney dysfunction and hormone disruption, with varying strengths of evidence.

However, the authors established that IQ loss and dental fluorosis were the most significant issues of concern and calculated hazard levels for those two items.

They recommended a 1.56 mg/L hazard level for moderate dental fluorosis and concluded that "precautionary concerns for potential neurodevelopmental cognitive effects may warrant special consideration" for setting acceptable water fluoride levels.

Different studies measure fluoride exposure using different methods, typically based on available data. Some use urinary concentrations as a marker of intake, which gives a snapshot of current levels. Others use water concentration levels.

The appropriate form of measurement has been a central point of debate in the trial, especially because many studies showing an association between fluoride and neurotoxicity measure urinary concentrations, which may capture fluoride exposure from sources other than water.

The EPA argues that water concentrations are the best measure for determining exposure risk for water fluoridation — the key question at stake in the case.

The Canadian study took the key step of making a urine-to-drinking water conversion when setting its 0.179 mg/L hazard level.

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Health Canada: 'Questions remain' about 'causal relationship'

The Health Canada expert panel reviewed the data submitted by authors of the systematic review, along with information about how Canada sets its guidelines, and information about dental fluorosis and neurocognitive effects in children.

Savitz served on the Health Canada panel at the same time that he was a paid consultant to the EPA in the lawsuit, and was called to testify in support of the EPA's continued fluoride drinking water standard in the trial.

He was joined on the panel by five other experts, including Steven Levy, DDS, a member of the American Dental Association's National Fluoridation Advisory Committee, who is active in efforts to fight against communities seeking to stop fluoridating their water.

The panel acknowledged that a "growing body of evidence suggests that fluoride in drinking water may be associated with reduced IQ scores in children at fluoride levels that may be found in Canadian drinking water."

However, they said, "questions remain regarding whether the weight of evidence supports a causal relationship." They declined to recommend setting a new hazard level for water fluoridation based on the neurocognitive evidence.

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Brenda Baletti Ph.D. is reporter for The Defender. She wrote and taught about capitalism and politics for 10 years in the writing program at Duke University. She holds a Ph.D. in human geography from the University of North Carolina at Chapel Hill and a master's from the University of Texas at Austin.

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TexasDriver 1 day ago
Shouldn't it be that regulators must prove it is safe, not that others must prove it is not?
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Diane Chaine TexasDriver 1 day ago
If the precautionary principle were honored, it would be that way.
Like Reply Share

Farrah 1 day ago
My guess is it will continue to be added to US water supply because the purpose and agenda IS TO HARM the public. Please become aware- Big Pharma owns the politicians and they want you sick and on an ever increasing menu of RX drugs.
Like Reply Share

Intrigue Farrah 16 hours ago
MKO a population with a lower IQ is easier to control & manipulate!!
Like Reply Share

Shahida 1 day ago
"The expert panel concluded there wasn't enough evidence to lower the amount of fluoride in drinking water based on its neurocognitive effects."
Why should anyone have to prove anything to remove fluoride? Who provided the evidence that it should be there in the first place?
Like Reply Share

Nyx Cat 1 day ago
Steve Levy is the prime researcher of the Iowa Fluoride Study IFS2

The IFS researchers find that "thirty recommending an 'optimal' fluoride intake is problematic." They agree with fluoride researchers Hurt and Ekstrand that the term "optimal fluoride intake" be dropped from common usage.

Quantifying fluoride intake is more complex than it was several decades ago because of the widespread use of fluoridated dental products and increased fluoride content of foods, they report.

"Thus, it is doubtful that parents or clinicians could adequately titrate fluoride intake to a narrow range that could be considered 'optimal,' rendering the concept of an "optimal" or target intake relatively moot," they write.

In 2003, IFS researchers wrote, "There is no specific nutritional requirement for fluoride." They described the fluoride content of some foods. For example:

see more
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Colin Nyx Cat 1 day ago
3 hours ago - edited
Yes, I agree that fluoride does not stop tooth decay, but can give the children dental fluorosis or fluoride poisoning.
One of the graphics from the IFS shows this below.
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Hollistopper 1 day ago
If the courts do not mandate that fluoride be kept out of drinking water then it will be up to us moms and dads to find ways to lower consumption in our sons and daughters. It is likely that nearly all will ingest some amount, but hopefully it will not be enough to reduce their inherent brilliance.
Like Reply Share

BethC Hollistopper 1 day ago
I'll keep using gravity filters from Radiant Life Catalog that remove fluoride (unlike pitcher with myriad other toxins. I use them in a Berkey.
Like Reply Share

Peter van der Sluijs 1 day ago
I am actually wondering why there has to be Fluoride in drinking water.
It does not work internally.
Why not in soft drinks. Because THAT is were the problems come from. SUGAR.
It is either have a so called diet soft drink with proven in it or a load of sugar.
Like Reply Share

Colin Peter van der Sluijs 1 day ago
If soft drinks are made with fluoridated tap water, then there is fluoride in the drinks.
But these drinks have about 10% sugar or 100,000 PPM parts per million, but fluoride is only 1 PPM.
Thus, the acidic levels of these drinks will eat into fluoridated teeth anyway.
Like Reply Share

Guadalupe Munoz 1 day ago
The stars are well aligned for a victory to save children's developing brains from fluoride damage
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